

TWO NEW SPECIES OF MEXICAN *BACCHARIS* (ASTERACEAE: ASTEREEAE)

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ABSTRACT

Southeastern Mexican populations previously considered to represent *Baccharis heterophylla* Kunth are here recognized as the new species, *B. glandulifera* *spec. nov.* The latter is endemic to Oaxaca and Chiapas, and is allopatric with *B. heterophylla*, now considered to be restricted to central, western, and northwestern México. The type of *B. vaccinioides* Kunth, a name traditionally applied to plants of Chiapas and adjacent Central America, was collected in Hidalgo and is conspecific with *B. conferta* Kunth. Since the southern "vaccinium like" plants have never received a name, they are formally described here as *B. confertoides* *spec. nov.*, an epithet chosen to emphasize their close relationship to *B. conferta*.

KEY WORDS: *Baccharis*, Asteraceae, Astereae, México, Central America.

In connection with taxonomic studies of the Asteraceae-Astereae of México, two aspects of the systematics of *Baccharis* are discussed here in some detail. Hypotheses of the relationships of these taxa in a broader context will be presented in a separate paper (Nesom 1990).

I. A new species related to *Baccharis heterophylla*.

Baccharis glandulifera Nesom, *spec. nov.* TYPE: MÉXICO. Oaxaca: Mpio. Juquila, Puertecillo de Lachoa, km. 180 carretera Oaxaca-Puerto Escondido, pine-oak woods, 2000 m, 14 Apr 1965, *Rzedowski 19619* [pistillate] (HOLOTYPE: TEX!; Isotype: ENCB). (*Rzedowski 19618* is a staminate specimen from the type locality. *Rzedowski 19617*, also collected at the same locality, is *Baccharis trinervis* Pers.).

Baccharis heterophylla Kunth similis sed phyllariis ad apices glandibus fuscatis tumidisque, acheniis minoribus, et pappo setis brevioribus differt.

Glabrous, glutinous shrubs or small trees 1-3(-4.5) m tall. Leaves bright green or yellow green, thick, with sunken resin glands, oblanceolate to oblong oblanceolate, distinctly or obscurely trinerved, with 1-4 pairs of teeth, usually in distal half, infrequently entire, 20-50 mm long, 4-15(-20) mm wide, 3-5 times longer than wide, apex blunt to obtuse, base cuneate or attenuate to a short petiole or petiolar region 1-3 mm long. Heads sessile or subsessile in tight, terminal clusters, campanulate, 4-5 mm wide, 3.5-5.0 mm long; phyllaries of at least the outer series with a dark brown or blackish, sharply delimited, swollen gland on the abaxial apex, stramineous below, margins thin and translucent. Hermaphroditic corollas 4 mm long, pubescent on the limb and upper tube. Pistillate corollas tubular, 2-3 mm long, with fimbriate apical extensions; style branches 0.5 mm long. Achenes 0.8-1.1 mm long, 0.4-0.6 mm wide, 10-11 nerved; mature pappus 4.0-6.5 mm long.

Oaxaca to central Chiapas (Figure 1); pine, pine-oak, or pine woods, disturbed forest of *Alnus*, evergreen forest of *Tazodium* and *Ficus*; 1000-2950 m; flowering December through May (-July).

Representative collections examined: MÉXICO. Chiapas: Mpio. Venustiano Carranza, at NE boundary of Aguacatenango, *Breedlove* 9645 (LL); 5 km N of Ixtapa along road to Soyalo, along the Río Laja, *Breedlove* 35077 (MO, TEX). Oaxaca: San Pablo Macuiltianguis, 10 km from the entrance to la Puerta del Sol, *Calzada* 4975 (TEX); near Oaxaca, Rancho Benito Juárez on road up mountains from Teotitlán de Valle, *Carlson* 1431 (TEX); 2 km S of El Punto on Hwy 175, ca. 30 km N of Oaxaca, *Conrad* 3145 (MO); 37.9 mi S of bridge at Valle Nacional on Hwy 175, *Croat* 48130 (MO); 21 km NE of Ixtlán de Juárez on Hwy 175, *Judziewicz* 3371 (WIS); El Tejocote on Rte 190, *King* 6456 (MO); 20 km NE of Oaxaca on road to Ixtlán, *Marcks & Marcks* 1107 (LL); on road from Ayutla to Zacatepec, 3 km S of turnoff to Zacatepec, *Nee & Martin* 32217 (TEX); between Macuiltianguis and Puerta del Sol, *Ortega O. & Ortiz T.* 1627 (TEX); 20 km NE of Oaxaca, on hwy from Juárez to Ixtlán, *Rzedowski* 19271 (TEX); Cuauhtlilla, 28 Nov 1895, *Seler* 1510 (GH); Rancho de Calderon, 11 Feb 1895, *Smith* 374 (GH); 4.8 km W of Sto. Tomás Ocotepec, *Torres C.* 2176 (MO); 14 km N of Diaz Ordaz, by the detour to Cuajimoloyas, *Torres C.* 2817 (TEX).

Baccharis glandulifera has previously been identified as *B. heterophylla*, to which it is most closely related, but the new species is particularly distinctive in its phyllaries with dark, swollen, apical glands. Some plants of *B. heterophylla* may have darkened phyllary apices but never the deep and conspicuous gland pockets of the plants to the south. Additionally, although the measurements are overlapping, the leaves and achenes of the two taxa are different in average size, as noted in the following couplet.

1. Leaves (21-)30-65 mm long, (6-)8-20 mm wide; phyllaries with a prominent, dark, glandular pocket at the abaxial apex; achenes 0.8-1.3 mm

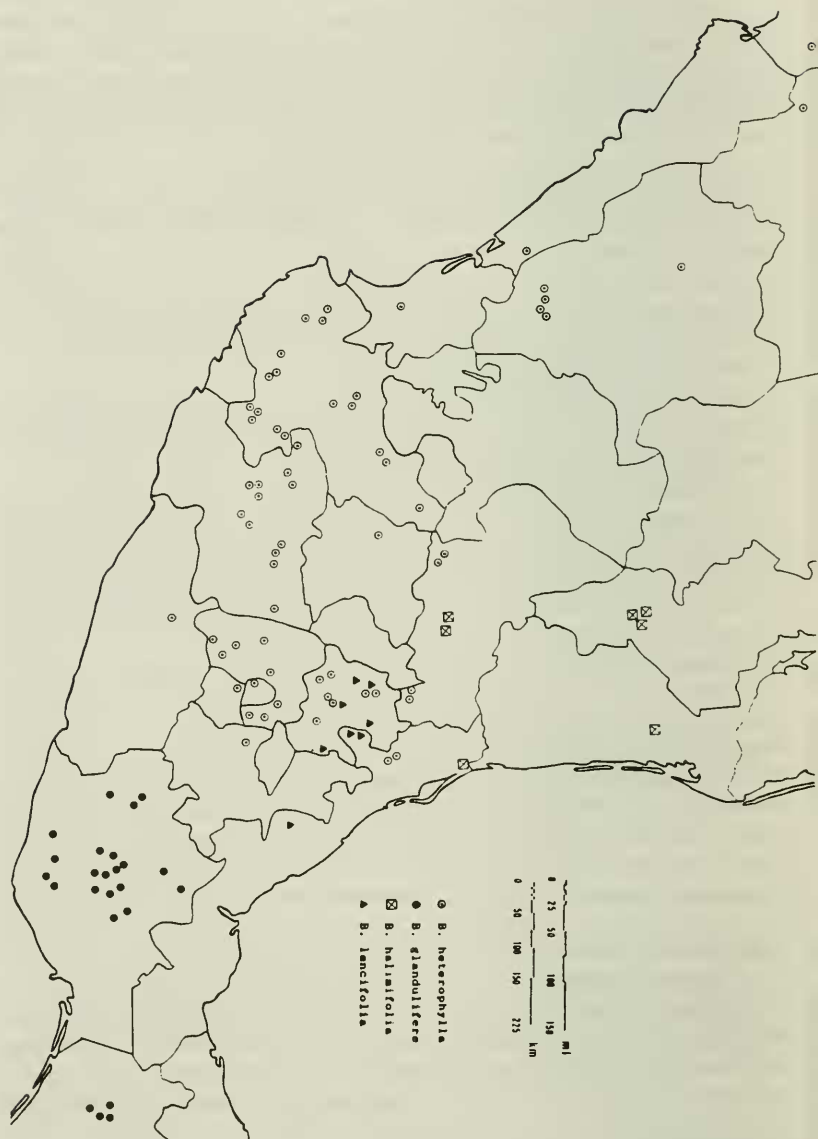


Figure 1. Geographic distribution of *Baccharis heterophylla*, *B. glandulifera*, *B. halimifolia*, and *B. lancifolia*.

long *B. glandulifera*

1' Leaves (20-)25-50 mm long, 4-12 mm wide; phyllaries sometimes darkened at the apex but never with a gland pocket; achenes 1.3-1.6 mm long *B. heterophylla*

All records of *Baccharis heterophylla* from Oaxaca to Chiapas apparently are referable to *B. glandulifera* (Figure 1). I have seen only two collections from Oaxaca that have phyllaries with only weakly developed gland pockets: *Smith 374* and *Seler 1510*. Both of these are apparently from well inside the range of the gland bearing plants, and both have larger leaves and smaller achenes typical of those in the surrounding area. The Seler collection is a damaged branch with a mixture of mature and immature heads.

In order to emphasize their close relationship, these two population systems might be regarded as conspecific and recognized at varietal rank. Nevertheless, since they are sharply distinct morphologically and separated geographically with no region of intergradation, the recognition of both at the rank of species seems justified.

Also mapped on Figure 1 is *Baccharis halimifolia* L., which is morphologically very similar to *B. heterophylla*. *Baccharis halimifolia* typically grows in swampy or lakeside habitats and is at the southwestern most extension of its range in México.

II. The identity of *Baccharis vaccinioides*.

The population system of plants known as *Baccharis vaccinioides* Kunth, which occurs from Chiapas to Guatemala, Honduras, and El Salvador, has been accepted by most systematists, including Matuda (1957) and Nash (1976) as a distinctive species. Apparently, however, no one has critically considered the location of the type collection or evaluated its identity, because the collection was made in the state of Hidalgo, far north of the range of the plants it traditionally has been associated with. Kunth's description clearly notes that the leaves of *B. vaccinioides* are uninerved and entire or toothed toward the apex of both margins, and the photograph (fiche) of the type specimen confirms this. Thus, given the type locality and the morphology of the plant itself, *B. vaccinioides* must be considered a synonym of *B. conferta* Kunth. The "vaccinium like" plants, which apparently have never been given a name, are formally provided below with a type and epithet.

***Baccharis confertoides* Nesom, spec. nov.** TYPE: MÉXICO. Chiapas: Mpio. San Cristobal Las Casas, E side of Zonthehuitz near summit, evergreen cloud forest, *Drimys*, *Clethra*, *Quercus*, and *Cleyera*, 2800 m,

19 Dec 1972, *D.E. Breedlove 30436* (HOLOTYPE: LL!; Isotypes: CAS, MEXU!).

Baccharis confertae Kunth similis sed foliis integris praecipue differt.

Glabrous, glutinous shrubs or small trees 1.0-3.5 m tall. Leaves elliptic to elliptic obovate, entire, uninerved, 10-28 mm long, 6-12 mm wide, punctate, with minutely papillate margins. Heads 3-5 mm wide, 3-4 mm long; phyllaries sometimes with a colored apical portion or rim. Hermaphroditic corollas distinctly pubescent with short, white hairs, at least on the upper tube and lower limb. Achenes 1.1-1.3 mm long; mature pappus 4-5 mm long.

Chiapas (México), to Guatemala, El Salvador, and Honduras (as noted by Nash [1976]) (Figure 2); roadsides, slopes in oak, pine-oak, often with alder, or evergreen cloud forests; 1600-3600 m; December-April.

Representative collections examined: MÉXICO. Chiapas: Mt. Pasitar, 30 Dec 1936, *Matuda 722* (LL).

GUATEMALA. Dept. Totonicapan: near San Francisco El Alto, 12 Jan 1941, *Standley 83137* (LL).

EL SALVADOR. Dept. Chalatenango: near summit of Los Esesmites, 10 Mar 1942, *Tucker 986* (LL).

Baccharis conferta Kunth, *Nov. Gen. & Sp. Pl.* 4 [folio]:43. 1818; 4 [quarto]:55. 1820. TYPE: MÉXICO. [Morelos]: near Cuernavaca, Apr [1803], *Humboldt & Bonpland s.n.* (P fiche!, B-WILLD [photo TEX!]).

Baccharis vaccinioides Kunth, *Nov. Gen. & Sp. Pl.* 4 [folio]:39. 1818; 4 [quarto]:50. 1820. TYPE: MÉXICO. [Hidalgo]: near Moran, May [1803], *Humboldt & Bonpland s.n.* (P fiche!, photo GH!). Not *B. vaccinioides* Gardn. (1845) from Brazil.

Baccharis resinosa Kunth, *Nov. Gen. & Sp. Pl.* 4 [folio]:41. 1818; 4 [quarto]:52. 1820. TYPE: [MÉXICO]: "In America meridionali," no date [1803], *Humboldt & Bonpland s.n.* (P fiche!).

Baccharis zalapensis Kunth, *Nov. Gen. & Sp. Pl.* 4 [folio]:44. 1818; 4 [quarto]:56. 1820. TYPE: MÉXICO. [Veracruz]: near Xalapa, Feb [1803], *Humboldt & Bonpland s.n.* (P fiche!).

Baccharis congesta DC., *Prodr.* 5:410. 1836. TYPE: MÉXICO. [Hidalgo]: Real del Monte, *Haenke s.n.* (HOLOTYPE: G-DC fiche! [photo TEX!]).

Baccharis orizabaensis Schultz-Bip. ex Hemsley, *Biol. Centr. Amer., Bot.* 2:130. 1881. SYNTYPES: MÉXICO. [Veracruz]: Peak of Orizaba, [no date], *Linden 1133* and *Liebmann 353* (K).



Figure 2. Geographic distribution of *Baccharis conferta*, *B. confertoides*, and *B. dioica*.

San Luis Potosí, Michoacán, Guerrero, México, D.F., Hidalgo, Tlaxcala, Morelos, Veracruz, Puebla, Oaxaca (Figure 2); clearings or woods edges, grassy areas, often grazed or recently burned, in areas of pine-oak, pine, pine-fir, or fir woods; (100-)1900-3250 m; February-May.

The two species are separated by the following couplet.

1. Shrubs 0.3-2.0 m tall; leaves mostly obovate-oblongate, with 1-2(-3) pairs of coarse teeth near the apex; phyllaries sometimes with a dark midvein but without a colored apical area or rim *B. conferta*
- 1' Shrubs to small trees 1.0-3.5 m tall; leaves mostly elliptic to slightly oblongate, the margins entire; phyllaries often with a colored apical portion or rim *B. confertoides*

Rare individuals of *Baccharis conferta* produce leaves that are entire or nearly so, but even then, a few other leaves on those plants usually have slightly toothed margins. Even more rare are specimens on which all the leaves are entire, such as *Arsene & Nicolas 5157* (GH), collected in the vicinity of Cd. Puebla. The latter has small, oblongate leaves and was collected in an area from which a number of other specimens with small but typically toothed leaves have been taken. The southeasternmost collection known of *B. conferta* (*Croat & Hannon 65795* [TEX], from the Uxpanapa region of eastern Oaxaca) is morphologically very typical of the species, although at an unusually low elevation, and the distributional disjunction to the south is correlated with an abrupt transition in morphology as well. Further study may show that these closely related taxa are better recognized as varieties of a single species, but such a study should necessarily also account for variation patterns in the related *B. tricuneata* (L. f.) Pers. of South America. Nash (1976) has noted that *B. tricuneata*, which has several varieties (Cuatrecasas 1968), might be conspecific with *B. conferta*. Each of these three taxa, however, occupies a discrete geographic region separate from the others, and it seems more reasonable at present to recognize each as a separate species, while acknowledging their close relationship.

Also mapped on Figures 1 and 2, respectively, are *Baccharis lancifolia* Schlecht. and *B. dioica* Vahl, closely related species that also produce uninnerved, elliptic to oblongate, and entire leaves. The former differs from both *B. conferta* and *B. confertoides* in its much larger leaves with smooth margins and acute apices, and the latter differs in its completely smooth leaf margins, much shorter pappus, and its sandy, coastal habitats.

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